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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/735,369	12/12/2000	Ganning Yang	01827.0016.00US00	3929

29899 7590 02/08/2005

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ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/735,369	YANG ET AL.	
	Examiner	Art Unit	
	Harry Vartanian	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *7/12/2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,14,17-28,33 and 36-42* is/are rejected.

7)☒ Claim(s) *10-13,15,16,29-32,34 and 35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 December 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Arguments

1. Applicant's arguments filed 7/12/2004 have been fully considered but they are not persuasive. Applicant argues that the combination of Ushirokawa et al and Weigand et al do not suggest or imply the use of both pattern detection and signal strength determination in order to detect a burst of data. Examiner respectfully rebuts this argument. It should be appreciated that both Ushirokawa et al and Weigand et al try to solve the problem of burst detection in TDMA systems(See Abstracts). In regards to Ushirokawa et al, a burst detection system is described where RSSI, a "signal strength" metric, is used to determine:

> "**the signal quality information** for each plurality of symbol times may include, solely or in combination, an average value or a minimum value of **a received signal strength** indicator within the plurality of symbol times or an average value for the plurality of symbol times of a variation amount of a received signal strength indicator between symbols." **(Column 3, Lines 25-30)**

This signal quality is monitored and adjusted for changes in strength:

> "**A time-varying reliability information** production circuit 40 receives symbol-wise information of demodulation process from the demodulator 11 and **produces reliability information** regarding the hard decision signal. A decision error signal may be used as the demodulation process information. The time-varying reliability information production **circuit 40 receives signal quality information *for each burst* or block time and changes the reliability information production method for each burst or block time *based on the signal quality information***. A soft decision signal production circuit 12 produces a soft decision signal from the hard decision signal and the reliability information. **(Column 7, Lines 54-67)**

Therefor, Ushirokawa et al does in fact meet the limitation:

> "a burst detector for signaling a detection of a burst if the signal strength change detection logic determines that a signal strength change of predetermined magnitude"

Moreover as noted by counsel, Weigand et al does teach the use of pattern detection is used to determine if a burst meets an error detection criteria(Column 4, Line 62 to Column 5, Line 3). The main issue to be resolved is if the use of both in a TDMA burst detection system would be obvious to one of ordinary skill in the art? The fact that Weigand et al states that ***either*** CRC pattern detection and signal strength detection is moot since Ushirokawa et al already establishes that signal strength detection is used in TDMA burst detection. The premise should be if there is a motivation to use CRC in a TDMA burst detection system? According to Weigand et al there is a motivation to use CRC

since he states a well known fact that CRC, which applicant admits to being "a pattern", assists in error detection and *even suggests the need to account for signal strength*:

> "**The CRC field is intended to identify errors** in the speech data but in, for example, the DECT standard the CRC polynomial is weak (G(x)=x.sup.4 +1) and is also subject to falsing (i.e., not detecting an error when there are fields of multiple errors due to error cancellation in the parity field of the code word). ***Additionally, a fade of the signal strength may also cause the CRC error detection to fail***." **(Column 2, Lines 44-61)**

Therefor, there is a motivation to combine signal strength detection and pattern detection in a TDMA system.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1-6, 20, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushirokawa et al (US Patent# 5,621,764) in view of Weigand et al(US Patent# 5,802,076). Regarding Claim 1, Ushirokawa et al meets the following limitations:

> A burst detection system**(fig 2a)**...
>
> a signal strength change detector for determining strength changes in the incoming signal; **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67)]**
>
> signal strength detection logic for determining if a change in signal strength of a predetermined magnitude has occurred; **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67); Note: In the last paragraph of column 7, "time-varying reliability information" applies to monitoring the change in RSSI Please consider this limitation being met in the following dependent Claims also.]**
>
> a burst detector for signaling a detection of a burst if the signal strength change detection logic determines that a signal strength change of predetermined magnitude.... **[fig 2a shows the signal strength indicator signal "RSSI"; 10b item 46; (Column 5, Line 15 to Column 7, Line 67)]**

Ushirokawa et al fails to teach the use of pattern detection to determine if a predetermined pattern is present in the burst.

However, Weigand et al meets the following limitation:

> a pattern detector for monitoring patterns of symbols in the incoming signal to determine if a predetermined pattern is present; **[(Column 2, line 64 to Column 3, line 11) (Column 4, Line 62 to Column 5, Line 13)]**

Weigand et al discloses in the paragraphs referenced above that CRC is used to detect error in control data or audio data(Column 3, Line 1-2). Moreover, his system also checks to see if the signal strength of the burst is below a certain threshold(Column 5, line 1). Therefor it would have been prima facie obvious for Ushirokawa et al's burst detection system to use pattern matching of predefined patterns to determine the validity of a burst signal. The motivation to combine is that checking for a pattern match of the control data adds another level of burst detection verification since it makes sure that if a noise burst passes RSSI threshold detection it does not get erroneously decoded(See Weigand et al Column 2, Lines 44-61).

In regards to Claim 2, Ushirokawa et al meets the following limitations:

> the signal strength change detector is a power change detector **(Column 7, Lines 27-31)**

In regards to Claim 3, Ushirokawa et al meets the following limitations:

> a signal strength indicator for indicating the strength of the incoming signal **Fig 2a; (Column 7, Lines 27-31)**

In regards to Claim 4, Ushirokawa et al meets the following limitations:

> signal strength change detector for determining, responsive to the signal strength indicator, short-term changes in signal strength, and a long-term signal strength change indicator for determining, responsive to the signal strength indicator, long-term changes in signal strength. **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67)]**

Furthermore, Ushirokawa et al specifically mentions the short-term signal component of the Claim above in the line "As the first route, an RSSI average value in a burst..."(Column 6, Lines 50-52). Ushirokawa et al specifically discloses the long-term component of the signal when he states "as the third route, an average value of an RSSI variation amount between symbols is extracted..."(Column 6, Lines 55-59)

In regards to Claim 5, Ushirokawa et al meets the following limitations:

> responsive to the short-term and long-term signal strength change detectors, if a short-term change in signal strength of a predetermined magnitude has occurred, and a long-term change in signal strength of a predetermined magnitude has occurred. **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67)]**

In regards to Claim 6, Ushirokawa et al meets the following limitations:

> wherein the burst detector is configured to indicate the detection of a burst if the signal strength detection logic determines that a short-term change in signal strength of sufficient magnitude has occurred, and that a long-term change in signal strength of sufficient magnitude has occurred, and the pattern detector determines that a predetermined pattern of symbols is present in the incoming signal **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67); SEE ABOVE REJECTION REGARDING THE USE OF A PREDETERMINED PATTERN OF SYMBOLS]**

In regards to Claim 20, the rejection for Claim 1 above meets the limitations of the Claim 20.

In regards to Claim 41, Weigand et al meets the following limitation:

> in a wireless communications device **fig 1**

2. Claims 7-9, 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushirokawa et al (US Patent# 5,621,764) in view of Weigand et al(US Patent# 5,802,076).

Regarding Claim 7, Ushirokawa et al meets the following limitations:

> A burst detection system**(fig 2a)**...
>
> a short-term signal strength change detector for determining short-term signal strength changes in the incoming signal; **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67)]**
>
> a long-term signal strength change detector for determining long-term signal strength changes in the incoming signal; **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67)]**
>
> signal strength change detection logic for determining if a short-term change in signal strength of predetermined magnitude has occurred, and a long-term change of signal strength of predetermined magnitude has occurred; **[fig 2a shows the signal strength indicator signal "RSSI"; 10b item 46; (Column 5, Line 15 to Column 7, Line 67) Note: In the last paragraph of column 7, "time-varying reliability information" applies to monitoring the change in RSSI Please consider this limitation being met in the following dependent Claims also.]**
>
> and a burst detector for signaling a detection of a burst if the signal strength change detection logic determines that a short-term signal strength change of predetermined magnitude has occurred, and that a long-term signal strength change of predetermined magnitude has occurred, and **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67)]**

Furthermore, Ushirokawa et al specifically mention the short-term signal component of the Claim above in the line "As the first route, an RSSI average value in a burst..."(Column 6,

Lines 50-52). Ushirokawa et al specifically discloses the long-term component of the signal when he states "as the third route, an average value of an RSSI variation amount between symbols is extracted..."(Column 6, Lines 55-59)

Ushirokawa et al fails to teach the use of pattern detection to determine if a predetermined pattern is present in the burst.

However, Weigand et al meets the following limitation:

> a pattern detector for monitoring patterns of symbols in the incoming signal to determine if a predetermined pattern is present **[(Column 2, line 64 to Column 3, line 11) (Column 4, Line 62 to Column 5, Line 13)]**
>
> the pattern detector signals that a predetermined pattern of symbols is present. **[(Column 2, line 64 to Column 3, line 11) (Column 4, Line 62 to Column 5, Line 13)]**

Weigand et al discloses in the paragraphs referenced above that CRC is used to detect error in control data or audio data(Column 3, Line 1-2). Moreover, his system also checks to see if the signal strength of the burst is below a certain threshold(Column 5, line 1). Therefor it would have been prima facie obvious for Ushirokawa et al's burst detection system to use pattern matching of predefined patterns to determine the validity of a burst signal. The motivation to combine is that checking for a pattern match of the control data adds another level of burst detection verification since it makes sure that if a noise burst passes RSSI threshold detection it does not get erroneously decoded.

In regards to Claim 8, Weigand et al meets the following limitations:

> a symbol detector for detecting symbols, or estimates thereof, in the incoming signal, and the pattern detector monitors the symbols or estimates provided by the symbol detector to determine if a predetermined pattern of symbols is present. **[(Column 2, line 64 to Column 3, line 11) (Column 4, Line 62 to Column 5, Line 13)]**

In regards to Claim 9, Ushirokawa et al meets the following limitations:

> a signal strength indicator for indicating the strength of the incoming signal, and the short-term and long-term signal strength change detectors respectively determine short-term and long-term changes in signal strength responsive to the indication of signal strength provided by the signal strength indicator. **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67); Note: In the last paragraph of column 7, "time-varying reliability information" applies to monitoring the change in RSSI]**

In regards to Claim 41, Weigand et al meets the following limitation:

> in a wireless communications device. **fig 1**

3. Claims 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ushirokawa et al (US Patent# 5,621,764) in view of Weigand et al(US Patent# 5,802,076) further in view of Yamamoto (U.S. Patent 6,370,210). Ushirokawa et al and Weigand et al meet all the limitations of Claim 14(see above paragraphs) including the symbol detector using soft estimates of the incoming signals(see Ushirokawa et al fig item 12). The two patents fail to disclose that the incoming signal is a quadrature baseband signal.

However, Yamamoto's burst detection method meets the following limitation:

> the incoming signal is a quadrature baseband signal, and the symbol detector determines soft estimates $\partial\theta$ of the symbols. **(Column 3, Lines 4-12)**

Therefor it would have been prima facie obvious for Ushirokawa et al's and Weigand et al burst detection system to use the quadrature baseband component of an incoming signal for burst detection. The motivation to combine is that communication receivers typically down convert a received signal to baseband and then split it into quadrature components for simpler decoding and baseband, i.e. low frequency, circuitry is easier to design than high frequency.

4. Claims 17 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushirokawa et al (US Patent# 5,621,764) in view of Weigand et al(US Patent# 5,802,076). Regarding Claim 17, Ushirokawa et al meets the following limitations:

> A system for recovering data**(fig 9)** from an incoming packet represented by an incoming signal, the packet having a preamble and a body**(fig 4)**
>
> a short-term signal strength change detector for determining short-term signal strength changes in a portion of the incoming signal representing the packet preamble; **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67)]**
>
> a long-term signal strength change detector for determining long-term signal strength changes in the portion of the incoming signal representing the packet preamble; **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67)] 10b item 46;**
>
> signal strength change detection logic for determining if a short-term change in signal strength of predetermined magnitude has occurred, and a long-term change of signal strength of predetermined magnitude has occurred; **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5,**

Line 15 to Column 7, Line 67); 10b item 46 for change detection logic; Note: In the last paragraph of column 7, "time-varying reliability information" applies to monitoring the change in RSSI. Please consider this limitation being met in the following dependent Claims also.]

a burst detector for signaling a detection of a burst if the signal strength change detection logic determines that a short-term signal strength change of predetermined magnitude has occurred, and **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67)] 10b item 46;**

that a long-term signal strength change of predetermined magnitude has occurred, **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67)] 10b item 46;**

Furthermore, Ushirokawa et al specifically mention the short-term signal component of the Claim above in the line "As the first route, an RSSI average value in a burst..."(Column 6, Lines 50-52). Ushirokawa et al specifically discloses the long-term component of the signal when he states "as the third route, an average value of an RSSI variation amount between symbols is extracted..."(Column 6, Lines 55-59)

Ushirokawa et al fails to teach the use of pattern detection to determine if a predetermined pattern is present in the burst.

However, Weigand et al meets the following limitation:

a pattern detector for monitoring patterns of symbols in the portion of the incoming signal representing the packet preamble to determine if a predetermined pattern is present; **(Column 2, line 64 to Column 3, line 11) (Column 4, Line 62 to Column 5, Line 13)**

data recovery logic for recovering data in the body of the packet responsive to the detection of a burst by the burst detector. **(Column 2, line 64 to Column 3, line 11) (Column 4, Line 62 to Column 5, Line 13)**

Weigand et al discloses in the paragraphs referenced above that CRC is used to detect error in control data or audio data(Column 3, Line 1-2). The control data is typically found in the preamble of the symbol. Moreover, his system also checks to see if the signal strength of the burst is below a certain threshold(Column 5, line 1). Therefor it would have been prima facie obvious for Ushirokawa et al's burst detection system to use pattern matching of the preamble to determine the validity of a burst signal. The motivation to combine is that checking for a pattern match of the control data, i.e. preamble, adds another level of burst detection verification since it makes sure that if a noise burst passes RSSI threshold

detection it does not get erroneously decoded. Specifically checking the preamble also saves time, since entire symbol is much longer pattern to match than the preamble.

In regards to Claim 41, Weigand et al meets the following limitation:

> in a wireless communications device. **fig 1**

5. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushirokawa et al (US Patent# 5,621,764) in view of Weigand et al(US Patent# 5,802,076) further in view of Deutsch et al (Us Patent# 5,590,410). Ushirokawa et al and Weigand et al meet all the limitations of Claim 18, except for disclosing "the data recovery logic includes timing and frequency acquisition circuitry."

However, Deutsch et al meets the following limitations in his burst detection component:

> the data recovery logic includes timing and frequency acquisition circuitry. **See Abstract for frequency acquisition; (Column 1, Lines 26-37) for timing acquisition; fig 2a, item 212 for burst mode detector**

Therefor it would have been prima facie obvious for Ushirokawa et al's and Weigand et al burst detection system to use timing and frequency acquisition circuitry. The motivation to combine is that communication receivers typically use timing and frequency acquisition in order to properly lock onto a transmitted signal.

In regards to Claim 19, Ushirokawa et al meets the following limitations:

> the data recovery logic further includes demodulation circuitry. **Abstract**

6. Claims 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushirokawa et al (US Patent# 5,621,764) in view of Weigand et al(US Patent# 5,802,076). Regarding Claim 21, Ushirokawa et al meets the following limitations:

> A method for detecting a burst in an incoming signal comprising**(fig 2a)**
>
> monitoring strength changes in the incoming signal to determine if a change in signal strength of a predetermined magnitude has occurred; **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67) 10b item 46; Note: In the last paragraph of**

column 7, "time-varying reliability information" applies to monitoring the change in RSSI. Please consider this limitation being met in the following dependent Claims also.]

signaling detection of a burst if a signal strength change of predetermined magnitude has occurred **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67)] 10b item 46;**

Furthermore, regarding the detection of the short-term and long-term bursts in parallel, it is shown in figure 2a that the three detection methods disclosed by Ushirokawa are done in parallel.

Ushirokawa et al fails to teach the use of pattern detection to determine if a predetermined pattern is present in the burst.

However, Weigand et al meets the following limitation:

monitoring, in parallel with the previous monitoring step, patterns of symbols in the incoming signal to determine if a predetermined pattern is present; **(Column 2, line 64 to Column 3, line 11) (Column 4, Line 62 to Column 5, Line 13)**

and a predetermined pattern of symbols is present. **(Column 2, line 64 to Column 3, line 11) (Column 4, Line 62 to Column 5, Line 13)**

Weigand et al discloses in the paragraphs referenced above that CRC is used to detect error in control data or audio data(Column 3, Line 1-2). Moreover, his system also checks to see if the signal strength of the burst is below a certain threshold(Column 5, line 1). Therefor it would have been prima facie obvious for Ushirokawa et al's burst detection system to use pattern matching of predefined patterns in parallel to determine the validity of a burst signal. The motivation to combine is that checking for a pattern match of the control data adds another level of burst detection verification since it makes sure that a noise burst that has passed RSSI threshold detection does not get erroneously decoded. Regarding the detection of the burst pattern in parallel with the short-term and long-term signal strengths, this step would have been obvious to do since it can reduce detection times.

Regarding Claim 22, Ushirokawa et al meets the following limitations:

indicating the strength of the incoming signal, and monitoring strength changes in the incoming signal responsive thereto. **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67)] 10b item 46;**

Regarding Claim 23, Ushirokawa et al meets the following limitations:

monitoring, responsive to the signal strength indication, short-term changes in signal strength, and long-term changes in signal strength. **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67)] 10b item 46;**

Furthermore, Ushirokawa et al specifically mention the short-term signal component of the Claim above in the line "As the first route, an RSSI average value in a burst..."(Column 6, Lines 50-52). Ushirokawa et al specifically discloses the long-term component of the signal when he states "as the third route, an average value of an RSSI variation amount between symbols is extracted..."(Column 6, Lines 55-59)

Regarding Claim 24, Ushirokawa et al meets the following limitations:

if a short-term change in signal strength of a predetermined magnitude has occurred, and a long-term change in signal strength of a predetermined magnitude has occurred. **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67)] 10b item 46;**

Regarding Claim 25, Ushirokawa et al meets the following limitations:

detecting a burst if a shorts term change in signal strength of sufficient magnitude has occurred, a long-term change in signal strength of sufficient magnitude has occurred, and a predetermined pattern of symbols is present in the incoming signal. **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67)] 10b item 46;**

7. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushirokawa et al (US Patent# 5,621,764) in view of Weigand et al(US Patent# 5,802,076).

Regarding Claim 26, Ushirokawa et al meets the following limitations:

monitoring short-term signal strength changes in the incoming signal to determine if a short-term change in signal strength of predetermined magnitude has occurred; **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67), 9, 10a, 10b];**

monitoring long-term signal strength changes in the incoming signal to determine if along-term change in signal strength of predetermined magnitude has occurred; **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67); Note: In the last paragraph of column 7, "time-varying reliability information" applies to monitoring the change in RSSI. Please consider this limitation being met in the following dependent Claims also.]**

signaling detection of a burst if a short-term signal strength change of predetermined magnitude has occurred, a long-term signal strength change of predetermined magnitude has occurred **[fig 2a shows**

the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67), 9, 10a, 10b];

Furthermore, Ushirokawa et al specifically mention the short-term signal component of the Claim above in the line "As the first route, an RSSI average value in a burst..."(Column 6, Lines 50-52). Ushirokawa et al specifically discloses the long-term component of the signal when he states "as the third route, an average value of an RSSI variation amount between symbols is extracted..."(Column 6, Lines 55-59)

Ushirokawa et al fails to teach the use of pattern detection to determine if a predetermined pattern is present in the burst.

However, Weigand et al meets the following limitation:

monitoring patterns of symbols in the incoming signal to determine if a predetermined pattern is present; **[(Column 2, line 64 to Column 3, line 11) (Column 4, Line 62 to Column 5, Line 13)]**

a predetermined pattern of symbols is present. **[(Column 2, line 64 to Column 3, line 11) (Column 4, Line 62 to Column 5, Line 13)]**

Weigand et al discloses in the paragraphs referenced above that CRC is used to detect error in control data or audio data(Column 3, Line 1-2). Moreover, his system also checks to see if the signal strength of the burst is below a certain threshold(Column 5, line 1). Therefor it would have been prima facie obvious for Ushirokawa et al's burst detection system to use pattern matching of predefined patterns in parallel to determine the validity of a burst signal. The motivation to combine is that checking for a pattern match of the control data adds another level of burst detection verification since it makes sure that a noise burst that has passed RSSI threshold detection does not get erroneously decoded. Regarding the detection of the burst pattern in parallel with the short-term and long-term signal strengths, this step would have been obvious to do since it can reduce detection times and acquisition times.

Regarding Claim 27, Ushirokawa et al meets the following limitations:

detecting symbols, or estimates thereof, in the incoming signal, and monitoring the symbols or estimates to determine if a predetermined pattern of symbols is present. **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67), 9, 10a, 10b];**

Regarding Claim 28, Ushirokawa et al meets the following limitations:

> indicating the strength of the incoming signal, and monitoring short-term and long-term changes in signal strength responsive to the indication of signal strength. **[fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67), 9, 10a, 10b];**

8. Claims 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ushirokawa et al (US Patent# 5,621,764) in view of Weigand et al(US Patent# 5,802,076) further in view of Yamamoto (U.S. Patent 6,370,210). Ushirokawa et al and Weigand et al meet all the limitations of Claim 33(see above paragraphs) including the symbol detector using soft estimates of the incoming signals(see Ushirokawa et al fig item 12). The two patents fail to disclose that the incoming signal is a quadrature baseband signal.

However, Yamamoto's burst detection method meets the following limitation:

> the incoming signal is a quadrature baseband signal, and the method further comprises determining soft estimates $\partial\theta$ of the symbols.**(Column 3, Lines 4-12)**

Therefor it would have been prima facie obvious for Ushirokawa et al's and Weigand et al burst detection system to use the quadrature baseband component of an incoming signal for burst detection. The motivation to combine is that communication receivers typically down convert a received signal to baseband and then split it into quadrature components for simpler decoding and baseband, i.e. low frequency, circuitry is easier to design than high frequency.

9. Claims 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ushirokawa et al (US Patent# 5,621,764) in view of Weigand et al(US Patent# 5,802,076). Regarding Claim 36, Ushirokawa et al meets the following limitations:

> the packet having a preamble and a body**(fig 4)**, comprising:
>
> monitoring short-term signal strength changes in a portion of the incoming signal representing the packet preamble to determine if a short-term change in signal strength of predetermined magnitude has occurred; **(fig 4) [fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67), 9, 10a, 10b];**
>
> monitoring long-term signal strength changes in the portion of the incoming signal representing the packet preamble to determine if along-term change in signal strength of predetermined magnitude has

> occurred; **(fig 4) [fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67), 9, 10a, 10b];**
>
> signaling detection of a burst if a short-term signal strength change of predetermined magnitude has occurred, a long-term change in signal strength of predetermined magnitude has occurred, **(fig 4) [fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67), 9, 10a, 10b; Note: In the last paragraph of column 7, "time-varying reliability information" applies to monitoring the change in RSSI. Please consider this limitation being met in the following dependent Claims also.]**
>]
>
> recovering data in the body of the packet responsive to detection of a burst. **(Claim 1)**

Furthermore, Ushirokawa et al specifically mention the short-term signal component of the Claim above in the line "As the first route, an RSSI average value in a burst..."(Column 6, Lines 50-52). Ushirokawa et al specifically discloses the long-term component of the signal when he states "as the third route, an average value of an RSSI variation amount between symbols is extracted..."(Column 6, Lines 55-59)

Ushirokawa et al fails to teach the use of pattern detection to determine if a predetermined pattern is present in the burst.

However, Weigand et al meets the following limitation:

> monitoring patterns of symbols in the portion of the incoming signal representing the packet preamble to determine if a predetermined pattern is present; **(Column 2, line 64 to Column 3, line 11) (Column 4, Line 62 to Column 5, Line 13)**
>
> and a predetermined pattern of symbols is present; **(Column 2, line 64 to Column 3, line 11) (Column 4, Line 62 to Column 5, Line 13)**

Weigand et al discloses in the paragraphs referenced above that CRC is used to detect error in control data or audio data(Column 3, Line 1-2). The control data is typically found in the preamble of the symbol. Moreover, his system also checks to see if the signal strength of the burst is below a certain threshold(Column 5, line 1). Therefor it would have been prima facie obvious for Ushirokawa et al's burst detection system to use pattern matching of the preamble to determine the validity of a burst signal. The motivation to combine is that checking for a pattern match of the control data, i.e. preamble, adds another level of burst detection verification since it makes sure that a noise burst that has passed RSSI threshold

detection does not get erroneously decoded. Specifically checking the preamble also saves time, since entire symbol is much longer pattern to match than the preamble.

10. Claims 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushirokawa et al (US Patent# 5,621,764) in view of Weigand et al(US Patent# 5,802,076) further in view of Deutsch et al (Us Patent# 5,590,410). Ushirokawa et al and Weigand et al meet all the limitations of Claim 37, except for disclosing "the data recovery logic includes timing and frequency acquisition circuitry."

However, Deutsch et al meets the following limitations in his burst detection component:

> comprising acquiring timing and frequency responsive to detection of a burst. **See Abstract for frequency acquisition; (Column 1, Lines 26-37) for timing acquisition; See fig 2a, item 212 and (Column 3, Lines 46-61) for burst mode detector**

Therefor it would have been prima facie obvious for Ushirokawa et al's and Weigand et al burst detection system to use timing and frequency acquisition circuitry to detect bursts. The motivation to combine is that communication receivers typically use timing and frequency acquisition in order to properly lock onto a transmitted signal.

In regards to Claim 38, Ushirokawa et al meets the following limitations:

> the data recovery logic further includes demodulation circuitry. **Abstract**

11. Claims 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushirokawa et al (US Patent# 5,621,764) in view of Weigand et al(US Patent# 5,802,076). Regarding Claim 39, Ushirokawa et al meets the following limitations:

> a step for monitoring strength changes in the incoming signal to determine if a change in signal strength of a predetermined magnitude has occurred; **(fig 4) [fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67), 9, 10a, 10b; Note: In the last paragraph of column 7, "time-varying reliability information" applies to monitoring the change in RSSI. Please consider this limitation being met in the following dependent Claims also.]**

> a step for signaling a detection of a burst if a signal strength change of predetermined magnitude has occurred**(fig 4) [fig 2a shows the signal strength indicator signal "RSSI"; (Column 5, Line 15 to Column 7, Line 67), 9, 10a, 10b];**

Ushirokawa et al fails to teach the use of pattern detection to determine if a predetermined pattern is present in the burst.

However, Weigand et al meets the following limitation:

> a step for monitoring patterns of symbols in the incoming signal to determine if a predetermined pattern is present;**(Column 2, line 64 to Column 3, line 11) (Column 4, Line 62 to Column 5, Line 13)**
>
> and a predetermined pattern of symbols is present; **(Column 2, line 64 to Column 3, line 11) (Column 4, Line 62 to Column 5, Line 13)**

Weigand et al discloses in the paragraphs referenced above that CRC is used to detect error in control data or audio data(Column 3, Line 1-2). Moreover, his system also checks to see if the signal strength of the burst is below a certain threshold(Column 5, line 1). Therefor it would have been prima facie obvious for Ushirokawa et al's burst detection system to use pattern matching of predefined patterns in parallel to determine the validity of a burst signal. The motivation to combine is that checking for a pattern match of the control data adds another level of burst detection verification since it makes sure that a noise burst that has passed RSSI threshold detection does not get erroneously decoded. Regarding the detection of the burst pattern in parallel with the short-term and long-term signal strengths, this step would have been obvious to do since it can reduce detection times and acquisition times.

In regards to Claim 40, Ushirokawa et al meets the following limitations:

> a step for performing the first two monitoring steps in parallel. **Fig 2a**

12. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ushirokawa et al (US Patent# 5,621,764) in view of Weigand et al(US Patent# 5,802,076) further in view of Larijani et al(US Patent# 6,603,746). Ushirokawa et al and Weigand et al meet all

the limitations of Claim 42(see above paragraphs) except for disclosing the use of computer readable media to implement their burst detector.

However, Larijani et al meets the following limitation:

Computer readable media tangibly embodying any of the methods **See Claim 17**

Therefor it would have been prima facie obvious for Ushirokawa et al's and Weigand et al's burst detection system to be implemented using computer readable media. The motivation to combine is that computer readable media can later be reprogrammed allowing greater flexibility in scaling or updating the burst detection algorithm.

Allowable Subject Matter

13. Claims 10-13, 15-16, 29-32, 34-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please consider Patent #6,272,186 specifically the abstract and Fig 2.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory

period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry Vartanian whose telephone number is 571.272.3048. The examiner can normally be reached on 10:00-6:30 Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571.272.3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Harry Vartanian
Examiner
Art Unit 2634

HV

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SUPERVISORY PATENT EXAMINER
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